

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE J		PAGE OF PAGES 1 12	
2. AMENDMENT/MODIFICATION NO. 0001		3. EFFECTIVE DATE 21-Aug-2002		4. REQUISITION/PURCHASE REQ. NO. W16ROE-2192-3007		5. PROJECT NO.(If applicable)	
6. ISSUED BY USA ENGINEER DISTRICT, NEW YORK ATTN: CENAN-CT ROOM 1843 26 FEDERAL PLAZA (DACW51) NEW YORK NY 10278-0090		CODE DACW51		7. ADMINISTERED BY (If other than item 6) See Item 6		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)				X		9A. AMENDMENT OF SOLICITATION NO. DACW51-02-B-0020	
				X		9B. DATED (SEE ITEM 11) 31-Jul-2002	
						10A. MOD. OF CONTRACT/ORDER NO.	
						10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).							
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The purpose of this amendment is to make the following changes to incorporate new Bid Schedule. 1. Replace the Bid Schedule in its entirety with attached Bid Schedule. 2. Replace specification Sections 01356 and 02381 with attached Sections 01356 and 02381. 3. Replace Plan Sheets 3, 4, 5, 6, 7, 8, 9, 12, and 13 with attached Plan Sheets 3, 4, 5, 6, 7, 8, 9, 12, and 13. 4. The bid opening scheduled for 04 September 2002, 11:00 AM remains the same. NOTE: Bidders must acknowledge receipt of this amendment by the date specified in the solicitation (or as amended) by one of the following methods: In the space provided on the SF 1442 by separate letter or by signing block 15 below. FAILURE TO ACKNOWLEDGE AMENDMENTS BY THE DATE AND TIME SPECIFIED MAY RESULT IN REJECTION OF YOUR BID IN ACCORDANCE WITH THE LATE BID, LATE MODIFICATIONS OF BIDS OR LATE WITHDRAWAL OF BIDS (FAR 14.304). ALL OTHER TERMS AND CONDITIONS OF THE ORIGINAL SOLICITATION REMAIN THE SAME. Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				TEL: _____ EMAIL: _____			
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)		16C. DATE SIGNED 21-Aug-2002	

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION 00010 - SOLICITATION CONTRACT FORM

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	CLEARING AND GRUBBING	1	Lump Sum		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	MAINTENANCE AND PROTECTION OF TRAFFIC	1	Lump Sum		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	EROSION CONTROL MEASURES	1	Lump Sum		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004	PERMANENT SIGN	1	Lump Sum		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0005	EXCAVATION, COMMON	2,500	Cubic Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006	COMPACTED FILL				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0006AA		600	Cubic Yard		
	COMPACTED FILL, IMPORTED GRANULAR				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0006AB		1,800	Cubic Yard		
	COMPACTED FILL, SATISFACTORY ON-SITE MAT				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0007		700	Cubic Yard		
	WASTE HAULING AND DISPOSAL				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0008	RIPRAP	9,000	Cubic Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0009	JOINT PLANTING/LIVE STAKES				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0009AA	JOINT PLANTINGS (IN RIPRAP)	1,400	Square Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0009AB	LIVE STAKES (IN SOIL)		Square Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0010	GEOTEXTILE	11,750	Square Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011	CULVERT EXTENSIONS				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0011AA		20	Linear Foot		
	CULVERT EXTENSION, 6-INCH DIAMETER				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0011AB		20	Linear Foot		
	CULVERT EXTENSION, 12-INCH DIAMETER				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0011AC		20	Linear Foot		
	CULVERT EXTENSION, 24-INCH DIAMETER				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0012		250	Cubic Yard		
	SUBBASE COURSE				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013					
	BITUMINOUS CONCRETE PAVING				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0013AA		83	Ton		
	BASE COURSE				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0013AB	WEARING COURSE	42	Ton		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0014	BITUMINOUS TACK COAT	25	Gallon		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0015	SAW CUTTING BITUMINOUS PAVEMENT	800	Linear Foot		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0016		800	Linear Foot		
	STEEL BEAM GUARDRIAL				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017		1	Lump Sum		
	LANDSCAPING				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018					
	ARCHAEOLOGICAL MONITORING				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018AA	COORDINATION MEETING	1	Lump Sum		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0018AB	EXCAVATION	50	Cubic Yard		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
0018AC	STANDBY TIME	20	Hours		

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018AD		4	Each		
	SECURE AND OPEN TRENCHES				

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019		1	Lump Sum		
	MOBILIZATION AND DEMOBILIZATION				

NET AMT

TOTAL BID LINE ITEMS (0001-0019) \$_____

(End of Summary of Changes)

SECTION 01356

EROSION AND SEDIMENT CONTROL
08/96

Payment Item No. 0003 Erosion Control Measures

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4439	(1997) Standard Terminology for Geosynthetics
ASTM D 4491	(1996) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1996)) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1995) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(1995) Identification, Storage, and Handling of Geosynthetic Rolls

1.2 GENERAL

The Contractor shall implement the erosion and sediment control measures specified in this section in a manner which will meet the requirements of Section 01410 ENVIRONMENT PROTECTION.

1.3 UNIT PRICES

1.3.1 Erosion Control Measures

1.3.1.1 Measurement

Unit of measure: lump sum

1.3.1.2 Payment

Payment shall be for all costs associated with erosion control measures as specified on the Contract Drawings or as directed by the Contracting Officer including but not limited to, silt fence, hay bale sediment barriers, stabilized construction driveways, temporary seeding and mulching, erosion control matting, and sodding, including all other related and incidental work necessary for providing, installing and maintaining effective erosion control measures, as Pay Item No. 0003, Erosion Control Measures. Geotextile used for silt fence will be payed under Item 0003, (not Item 0010).

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-13 Certificates

Mill Certificate or Affidavit; FIO.

1.4 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented shall include seeding, and mulching. On his daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have permanently ceased.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.4.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices. Details of installation and construction are shown on the drawings. Locations are shown on the drawings and/or as established by the Contracting Officer.

1.4.2.1 Silt Fences

The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings and/or as directed by the Contracting Officer. Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

1.4.2.2 Straw Bales

The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, bales shall be placed as work progresses, bales shall be removed/replaced/relocated as needed for work to progress in the drainage area). Areas where straw bales are to be used are shown on the drawings and/or will be established in the field by the contracting officer. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. Rows of bales of straw shall be provided as follows:

- a. Along the downhill perimeter edge of all areas disturbed.
- b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
- c. Along the toe of all cut slopes and fill slopes of the construction areas.

1.5.2.3 Biodegradable Erosion Control Matting

The Contractor shall provide erosion control matting as a temporary structural practice to stabilize the surface of slopes until permanent erosion control measures (vegetation) are established. Erosion control matting shall be installed at the locations indicated on the drawings and/or as directed by the Contracting Officer.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Geotextile

The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic geotextile fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of -18 to 49 degrees C 0 to 120 degrees F. The geotextile shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile Elongation (%)	ASTM D 4632	445 N min. 30 % max.
Trapezoid Tear	ASTM D 4533	245 N min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

GEOTEXTILE FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile Elongation (%)	ASTM D 4632	100 lbs. min. 30% max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1

2.1.2 Silt Fence Stakes and Posts

The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 50 mm by 50 mm 2 inches by 2 inches when oak is used and 100 mm by 100 mm 4 inches by 4 inches when pine is used, and shall have a minimum length of 1.5 m 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum mass of 1.98 kg per linear meter weight of 1.33 pounds per linear foot and a minimum length of 1.5 m 5 feet.

2.1.3 Mill Certificate or Affidavit

A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 350 mm by 450 mm 14 inches by 18 inches. All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 50 mm by 50 mm 2 inches x 2 inches in cross section and shall have a minimum length of 1 m 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum mass of 1.98 kg per linear meter weight of 1.33 pounds per linear foot and a minimum length of 1 m 3 feet.

2.3 COMPONENT FOR EROSION CONTROL FABRIC

2.3.1 Biodegradable Erosion Control Matting

Erosion control matting shall consist of a uniform web of interlocking wood excelsior fibers with a backing of mulch net fabric on one side only. The

mulch net shall be woven of either twisted paper or cotton cord or formed from biodegradable plastic mesh. Excelsior matting shall be furnished in rolled strips and shall conform to the following requirements.

Physical Requirements

Normal Width: 36 or 48 inches; tolerance +/- 1 inch
Average Weight: 0.80 pound per square yard; tolerance +/- 10 percent

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 400 mm 16 inches above the ground surface and shall not exceed 860 mm 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 150 mm 6 inch overlap, and securely sealed. A trench shall be excavated approximately 100 mm 4 inches wide and 100 mm 4 inches deep on the upslope side of the location of the silt fence. The 100 mm by 100 mm 4-inch by 4-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 100 mm 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 100 mm 4 inches against the uphill side of the barrier. Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum 450 mm 18 inches deep into the ground to securely anchor the bales.

3.3 EROSION CONTROL MATTING

After the soil has been properly shaped, fertilized, seeded, and mulched the matting shall be laid out parallel to the flow of water or vertically on slopes.

No traffic of any kind will be permitted over the matting during or after

placement. Any torn or damaged material shall be replaced at the Contractor's expense.

Mulch should be under the complete coverage of the net so that the net is not in direct contact with the ground. The net shall be spread over the straw mulch so that there is space for a worker to walk between adjacent widths of the net. The edges of adjacent widths of the net shall be pulled together and held in place with wire staples spaced not more than 36 inches apart along the edge of the net. The staples shall be pushed into the ground so that the top of the staple is about 1/2 inch above the ground. The ends of each strip of net shall be held in place by staples at each corner and at the center of the net. Additional staples shall be installed as directed by the Contracting Officer.

3.3 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded in accordance with Section 02350 PLANTING.

3.3.2 Straw Bale Maintenance

Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded in accordance with Section 02350 PLANTING.

3.4.3 Erosion Control Matting Maintenance

The Contractor shall maintain the matted areas until all work has been completed and accepted. Maintenance shall consist of repairing areas damaged by erosion, wind, fire, or other causes at the Contractor's expense. Such areas shall be repaired to re-establish the condition and grade of the soil prior to application of the matting and shall be refertilized and reseeded.

3.4 INSPECTIONS

3.4.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 13 mm 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

3.4.2 Inspections Details

Disturbed areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

-- End of Section --

SECTION 02381

RIPRAP, JOINT PLANTINGS, AND LIVE STAKES

8/99

Payment Item No. 0008 Riprap
Payment Item No. 0009a Joint Plantings (In Riprap)
Payment Item No. 0009b Live Stakes (In Soil)

PART 1 GENERAL

1.1 REFERENCES

The most recent version of the publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic reference only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4791 (1995) Flat Particles, elongated
Particles, or Flat and Elongated Particles
in Coarse Aggregate

U.S. DEPARTMENT OF AGRICULTURE (USDA)Org

USDA (1992) Engineering Field Handbook, Chapter
16: Streambank and Shoreline Portection
and Chapter 18: Soil Boiengineering for
Upland Slope Protection and Erosion
Reduction.

CORPS OF ENGINEERS (COE)Org

COE EM-1110-2-1601 Hydraulic Design of Flood Control Channels

NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)

NYSDOT SPECIFICATION (1995) Standard Specifications
Construction and Materials.

1.2 UNIT PRICES

1.2.2 Riprap

1.2.2.1 Payment

Payment for riprap satisfactorily placed will be made at the applicable contract unit price for Item No. 0008 Riprap. Price and payment shall constitute full compensation for furnishing, hauling, handling, placing and maintaining the riprap stone until final acceptance by the Government. No separate payment will be made for the stockpiling of riprap, and all cost in connection with stockpiling shall be included in the contract unit price for riprap.

1.2.2.2 Measurement

Riprap will be measured for payment as the volume determined by multiplying the area, as measured in the field, of the surface on which the riprap is placed, by the thickness of the riprap measured perpendicular as dimensioned on the contract drawings.

1.2.2.3 Unit of Measure

Unit of measure: cubic yard.

1.2.2 Joint Plantings (In Riprap)

1.2.2.1 Payment

Payment for joints plantings (in riprap) satisfactorily placed will be made at the applicable contract unit price for Payment Item No. 0009a Joint Plantings (In Riprap). Price and payment shall constitute full compensation for furnishing, hauling, handling, placing in the riprap surface, and maintaining the joint plantings until final acceptance by the Government.

1.2.2.2 Measurement

Joint Plantings (in riprap) will be measured for payment as the square yard area, as measured in the field, of the riprap surface between the edge of the water and top of the riprap surface upon which the joint plantings have been installed.

1.2.2.3 Unit of Measure

Unit of Measure: square yards

1.2.3 Live Stakes (In Soil)

1.2.3.1 Payment

Payment for live stakes (in soil) satisfactorily placed will be made at the applicable contract unit price for Payment Item No. 0009b Live Stakes (In Soil). Price and payment shall constitute full compensation for furnishing, hauling, handling, placing in the soil, and maintaining the live stakes until final acceptance by the Government.

1.2.3.2 Measurement

Live Stakes (In Soil) will be measured for payment as the square yard area, as measured in the field, of the soil surface between the top of the riprap surface and the top of the bank upon which the lives stakes have been installed.

1.2.3.3 Unit of Measure

Unit of Measure: square yards

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-09 Reports

Riprap Quality and Density; GA A.

Submit information/data from the proposed quarry regarding the quality and density of the proposed riprap source.

Source of Rock; GA A

Submit the name and point of contact for the quarry that will supply the rock for the riprap

Source of Joint Plantings/Live Stakes; GA,A

The contractor shall identify the source location of the joint planting/live stake materials and identify the method of acquisition, transport and storage.

Plan of Joint Plantings/Live Stake Installation; GA,A

The contractor shall develop a Joint Planting/Live Stake Installation Plan to identify the approximate location, spacing, and type of joint planting/lives stakes to be installed on the riprap and soil slope. The plan will also identify the method of joint planting/live stake installation.

Equipment and Labor Documentation; GA,A

The contractor shall have a minimum of 2 years documented experience in installing streambank restoration projects which have involved planting of live willow stakes. The contractor shall furnish for approval full information concerning its capacity to provide suitable and sufficient quantity of equipment and labor to reasonably ensure that the plants will

be planted within the times specified.

1.4 TERMINOLOGY

1.4.1 Bank Stabilization

This paragraph explains certain terminology which is common to construction of bank stabilization work and which may not be self explanatory in the subsequent applicable provisions of the technical specifications and on the drawings.

1.4.2 Standard Drawings

Details of various types of structures in general use are shown on standard drawings forming a part of these specifications.

1.4.3 Stone Protection

Stone protection is defined as a system which includes a layer of bedding material or layers of filter material beneath a layer or layers of riprap. Stone protection is placed around structures in slack water or within a dewatered site. Stone protection may also be used to protect channel banks when it is placed in the dry or in slack water.

1.4.4 Riprap

Riprap is defined as a material having a gradation band similar to those specified in NYSDOT Specifications, Section 620 - Bank and Channel Protection. Riprap is normally produced by mechanical methods, with a jaw crusher and grizzly after the stone has been mined by blasting in a quarry.

1.4.5 Joint Plantings

Joint plantings (also called vegetated riprap) is defined as the installation of live stakes into joints or open spaces in riprap that has been previously placed on a slope, or tamped into place at the same time that riprap is being placed on the slope face.

PART 2 PRODUCTS

2.2 STONE

2.2.1 General

The Contractor shall use only rock that is blasted from an approved source.

2.2.2 Blasting Operations for Riprap and Stone Fill Source at Quarry Site

Blasting operations shall be conducted at the quarry in a manner that shall produce rock conforming to the requirements specified and may involve selective quarrying, handling, processing, blending, and loading as

necessary, all of which shall be as specified in Section 01451 CONTRACTOR QUALITY CONTROL. Blasting and handling of rock shall be controlled by the Contractor to produce rock of the size ranges and quality specified. Techniques such as the use of proper hole diameter, hole depth, hole angle, burden and spacing distances, types and distribution of explosives, delay intervals and sequence, removal of muck piles between each shot, and special handling techniques are required as necessary to produce the specified materials. All aspects of blasting operations shall be specifically designed so that the end products is not damaged from the blasting technique and that the stone is suitable for the intended purpose.

2.2.2.1. Curing Stone

The Contractor shall conduct curing operations on freshly blasted stone to allow it to release stored energy and moisture and to allow the stone to demonstrate that it will not fracture during the energy release and dry-out phase. Stones of sizes which are individually picked shall be temporarily stockpiled at the quarry site a minimum of 30 calendar days before being shipped to the project site, unless this requirement is waived by the Contracting Officer. Such waiver will be granted only if the stone has characteristics that make curing unnecessary.

2.2.2.2 Temporary Storage

Storage of stone materials subsequent to shipment from the quarry and prior to permanent placement in the required work shall be subject to approval of the Contracting Officer.

2.2.3 Gradation

Gradation testing will be in accordance with NYSDOT procedures, including a visual inspection of the proposed riprap at the quarry site. The Contractor shall coordinate with the Contracting Officer to provide for a visual gradation inspection of the proposed riprap prior to source approval.

2.2.3.1 Proportional Dimension Limitations

Dimensional requirements shall be in accordance with NYSDOT Medium Stone Fill.

2.2.3.2 Riprap Stockpile

Storage of riprap at the worksite is not to be confused with off-site stockpiling of riprap. If the Contractor elects to provide off-site stockpiling areas, the Contracting Officer shall be notified by the Contractor of all such areas. The Contractor's stockpile shall be a maximum of 12 feet high and formed by a series of layers of truckload dumps, where the rock essentially remains where it is placed. Subsequent layers shall be started 10 feet from the edge of the previous layer so that the rock will not roll down the edges of the previous layers. The first layer shall be a maximum of 6 feet high. After being stockpiled, any riprap, which has become contaminated with soil or refuse shall not be put

into the work unless the contaminating material has been removed from the riprap, prior to placement.

2.2.3.3 Worksite Stockpile

Riprap delivered to the work sites, which requires temporary storage landward of the top of slope, shall be placed in a container suitable for storing the riprap without waste. If the sand-clay-gravel or crushed stone pad method is used, the pad shall have a minimum thickness of at least 6 inches. The container or sand-clay-gravel or crushed stone pad method shall be subject to approval prior to delivery of the riprap. Upon completion of the work, the storage areas shall be cleaned of all storage residues and returned to their natural condition. Temporary storage of riprap at the worksite will be allowed, provided the stockpile toe of the riprap is no closer than 100 linear feet from the closest edge of the stream's top slope, and the amount shall not exceed 200 tons unless otherwise approved.

2.1.3.4 Off-Site Stockpile

In areas where riprap is stockpiled for placement, the area shall have excess rock removed prior to completion of work. All rock and spalls greater than 3 inches in diameter shall be removed. Where rocks may have become buried due to soft ground or operation of the equipment, the rock shall be disposed of as directed. After the rock has been removed, the storage area shall be graded, dressed, and filled to return the ground surface as near as practical to the condition that existed prior to construction.

2.1.3.5 Riprap Gradation

A. Riprap shall be well graded and shall conform to the requirements of NYSDOT Medium Stone Fill, as summarized below:

TABLE 1
(FOR RIPRAP)

STONE FILL ITEM	STONE SIZE	PERCENT OF TOTAL BY WEIGHT
Medium	Heavier than 110 lbs.	50 to 100
	Smaller than 6 in.	0 to 10

B. Stone sizes, other than weights, refer to the average of the maximum and minimum dimensions of a stone particle as estimated by the Contracting Officer.

C. Materials shall contain less than 20 percent of stones with a ratio of maximum to minimum dimension greater than three.

D. Materials shall contain a sufficient amount of stones smaller than the average stone size to fill in the spaces between the larger stones.

2.2 Joint Plantings/Live Stakes

2.2.1 General

A. Joint planting (in riprap) involves tamping live stakes into joints or open spaces in riprap that has been previously placed on a slope. Alternatively, the stakes can be tamped into place at the same time that riprap is being placed on the face of the slope.

B. Installing live stakes (in soil) is similar to joint plantings (in riprap) except that the installation is directly into the soil embankment that is above the upper limit of the riprap portion of the bank. In this application, live stakes are inserted into the biodegradable erosion control fabric, not into joints or open spaces in the riprap.

C. The contractor shall utilize only joint planting materials that are from an approved source. The contractor is responsible for identifying the location of a source for the joint planting materials and obtaining permission to obtain the live cuttings.

2.2.2 Joint Planting/Live Stake Materials

A. The joint planting/live stake material shall consist of live cuttings of native plant material including red-osier dogwood (*Cornus serotina*), and willow. A mix or a single species selected from the following willow species shall be used: red willow (*Salix discolor*), shining willow (*Salix lucida*), and black willow (*Salix nigra*).

B. Joint planting/live stake material shall be cut from live trees located at an approved site, which may include nursery sources, plant materials centers or existing local stands. The contractor shall obtain the cuttings when the trees are dormant and prior to the winter season (late-September through mid-November.)

C. Live cuttings shall have branches removed and bark intact. They shall be 1.5 inches or larger in diameter and sufficiently long to extend a minimum of two feet into the soil below the bottom of the riprap or below the bottom of the biodegradable erosion control fabric. The cuttings shall be installed with the buds in an upward position.

D. All plant materials must be top quality stock. Plant materials shall be true to species. They shall be sound, healthy specimens and first-class representatives of their species. Plant materials which have serious injuries, are shriveled, insect, pests, or diseases will be rejected. Furnished plants shall have grown under climatic conditions similar to those in the locality of the project.

PART 3 EXECUTION

3.1 BASE PREPARATION

Areas on which geotextile and riprap are to be placed shall be graded and/or dressed to conform to cross sections shown on the contract drawings within an allowable tolerance of plus 2 inches and minus 4 inches from the theoretical slope lines and grades. The prepared base shall be approved by the Contracting Officer. Where such areas are below the allowable minus tolerance limit they shall be brought to grade by fill with earth similar to the adjacent material and then compacted to a density equal to the adjacent in place material. Subaqueous areas on which riprap and filter materials are to be placed will not require grading. Riprap and filter materials below the water line may be placed on existing grade in accordance with the cross sections shown on the contract drawings. Immediately prior to placing the geotextile and bedding layers, the prepared base will be inspected by the Contracting Officer and no material shall be placed thereon until that area has been approved.

3.2 GEOTEXTILE

3.2.1 Installation

Installation of geotextile shall be as specified in Section 02378 GEOTEXTILE. The geotextile shall be extended to encompass the outlet area of each culvert that discharges on the existing slope.

3.3 PLACEMENT OF RIPRAP

3.3.1 General

Riprap shall be placed on the geotextile specified and within the limits shown on the contract drawings.

3.3.2 Placement of Riprap on Geotextile

Riprap shall be placed in such manner as to produce a well graded mass of rock with the minimum practicable percentage of voids, and shall be constructed within the specified tolerances to the lines and grades shown on the drawings. Placement shall begin at the bottom of the area to be covered and continue up slope. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a relatively homogenous mass. A tolerance of plus 2 inches or minus 2 inches from the slope lines and grades shown on the drawings will be allowed in the finished surface of the riprap, except that either extreme of such tolerance shall not be continuous over an area greater than 200 square feet. The average tolerance of the entire job shall have no more than 50 percent of the tolerance specified above. No stone shall be dropped through air from a height greater than 3 feet and stones heavier than 500 pounds shall not be dropped from a height greater than 2 feet. The larger stones shall be well distributed and the entire mass of stones in their final position shall be roughly graded to conform to the gradation specified in paragraph RIPRAP, GRADATION. The finished riprap shall be free from objectionable pockets of small stones and clusters of larger stones. Placing riprap in

layers will not be permitted. Placing riprap by dumping into chutes or by similar methods likely to cause segregation of the various sizes will not be permitted. Placing riprap by dumping it at the top of the slope and pushing it down the slope will not be permitted. No equipment shall be operated directly on the completed stone protection system. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing, or by other methods of placement which will produce the specified results. All dump trucks used in placing the riprap shall be equipped with bottom hinged tailgates. The gate releasing mechanism shall be arranged so that it may be operated only from, at, or near the front of the truck. Rearranging of individual stones will be required to the extent necessary to obtain a well-graded distribution of stone sizes as specified above. The Contractor shall maintain the stone protection until accepted by the Contracting Officer and any material displaced by any cause shall be replaced at his expense to the lines and grades shown on the drawings.

3.4 OUTLET DRAINS

3.4.1 Outlet Drains

Each existing storm water outlet drain and/or other pipes which daylight on the existing slope shall be extended to the new face of the finish slope as specified in Section 02630 STORM-DRAINAGE SYSTEM.

3.4.2 Opening in Geotextile

The contractor shall make one vertical and one horizontal cut in the geotextile fabric centered on the outlet drain, to permit the pipe to pass through the geotextile. The length of these cuts shall be as small as possible, while permitting the pipe to pass through the fabric.

3.4 EARTHWORK

3.4.1 Grading

Grading shall consist of the sloping of bluff banks damaged by bank failures and the preparation of the subgrade for placement of new riprap; reshaping of damaged drains and construction new drains; reshaping of overbank areas; and any incidental work as may be required in the prosecution of the work. Most of the grading will be in areas where mechanical equipment can be used, but some hand grading will be required. The Contractor shall remove and dispose of any existing unsuitable material (i.e., broken pavement, debris) that may have been placed on the bank during previous stabilization efforts. All grading and filling shall be done to the lines and grades as staked in the field or as specified. Material used in making fills or restoring the subgrade shall be suitable granular material that is free from roots, brush or other debris; and shall be placed in layers not to exceed 1 foot in thickness. Each layer shall be thoroughly compacted to a density at least equal to that of the adjacent undisturbed earth. Excess material shall be spread on the slope adjacent

to the area of repair or removed from the site.

3.4.2 Excavation

Excavation shall be required in some failures where protrusion of stone above adjacent surface is objectionable. Where excavation is specified, the subgrades shall be excavated 10 to 12 inches below the surface of the adjacent paving. Large areas may not require excavating throughout, but excavation to the depths specified above will be required only for a distance of 5 feet inside the perimeter of the failure. Most of the excavation can be accomplished by mechanical means, but some hand work around the edges will be required. All work shall be to the lines and grades as staked in the field or as specified. Material resulting from the operation shall be used for making fills where required as specified in paragraph GRADING. Excess material may be spread on the adjacent slopes or removed from the site.

3.5 PREPARATION OF SUBGRADE

In areas where riprap is specified, the subgrade shall be dressed as necessary to provide an even surface for placement of the geotextile and riprap.

3.6 STONE WORK

Riprap and stone shall be used for making stone fills, both above and below the water surface; and for constructing overbank spurs. Stone shall be placed on the bank or overbank area by crane or dragline equipped with skip, grapple, clamshell, or rock bucket; by front-end loader or bulldozer; or by trucks or other methods approved by the Contracting Officer. Unless otherwise approved by the Contracting Officer, the maximum capacity of dragline buckets used to place riprap and stone paving on the bank will be limited to 3 cubic yards.

3.3.1 Crushed Stone

Stone may be required for use to fill scoured areas or depressions in the subgrade, or as a blanket in the construction or repair of drains. Crushed stone is normally placed 4 inches in thickness above the water surface, 6 inches in drains. Placement above the water shall be to the lines and grade specified or as staked in the field; below the water surface, in the amount specified or as directed at the time of placing.

3.6.2 Stone Fills

Stone fills specified shall be placed to the lines and grades specified or as staked in the field. Where specified below the water surface, the material may be placed by any method elected by the Contractor, subject to approval by the Contracting Officer. The location of the fill and the quantities to be placed at each underwater location shall be as specified

or as directed at the time of placing.

3.8 JOINT PLANTINGS/LIVE STAKES

A. The contractor shall take care when cutting, transporting and installing the live cuttings in order to minimize damage to them. If storage of cuttings is necessary, the contractor shall be responsible for proper storage, including covering with wet burlap bags (or approved equal method) from the time that they are cut until they are installed on the slope. Prior to installation, the cuttings shall be soaked in water for a minimum of 24 hours.

B. The contractor shall plant the cuttings by first preparing an access hole through the riprap/geotextile or through the biodegradable erosion control fabric. A steel rod or hydraulic probe may be used to prepare a hole through the riprap, if plantings are installed after the riprap is in place.

C. Place the live cuttings in a random configuration, spaced approximately at 7-foot intervals.

D. Orient the live cuttings perpendicular to the slope and with the buds in an upward position. Each cutting shall extend a minimum of two feet into the soil below the bottom of the riprap or below the bottom of the biodegradable erosion control fabric.

E. The contractor shall notify the contracting officer of the collection and delivery schedule in advance so the plant materials may be inspected upon arrival at the job site. Immediately after receiving the plant materials, the contractor shall inspect such materials damage. Unacceptable plant materials shall be removed from the job site immediately.

F. Actual planting shall be performed during periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved by Contracting Officer.

G. Stakes that split during installation should be removed and replaced.

H. Fill material around the live vegetative cuttings should be suitable medium that includes fines and organic material capable of supporting plant growth. All fill soil around the live vegetative cuttings should be compacted to densities approximating the surrounding natural soil densities. The soil around the plants should be free of voids.

I. A final inspection should be scheduled with the Contracting Officer 2 years after installation is completed. Healthy growing conditions should exist. Healthy growing conditions in all areas refer to overall leaf development and rooted stems with 50% of joint plantings growing.

-- End of Section --